Environmental Regulation of DER: Driver or Barrier?

DER Annual Program Review

January 21, 2003

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Air Regulators Ask:

- What is DER?
- What are the benefits?
- Why do we want to drive it?
- What are we driving?

How Air Regulators See DER

- A tidal wave of new, “unregulated” sources.
- The arrival of “clean” DG.
- More diesel engines.

Why is DER Different Than Large Generators for Air Regulation?

Large Generators

- Individually designed/field erected
- Large capital cost
- High transaction cost
- Industrial site
- Skilled operators

DER

- Mass produced
- Low capital cost
- Low transaction cost
- Possible non-industrial site
- No operators

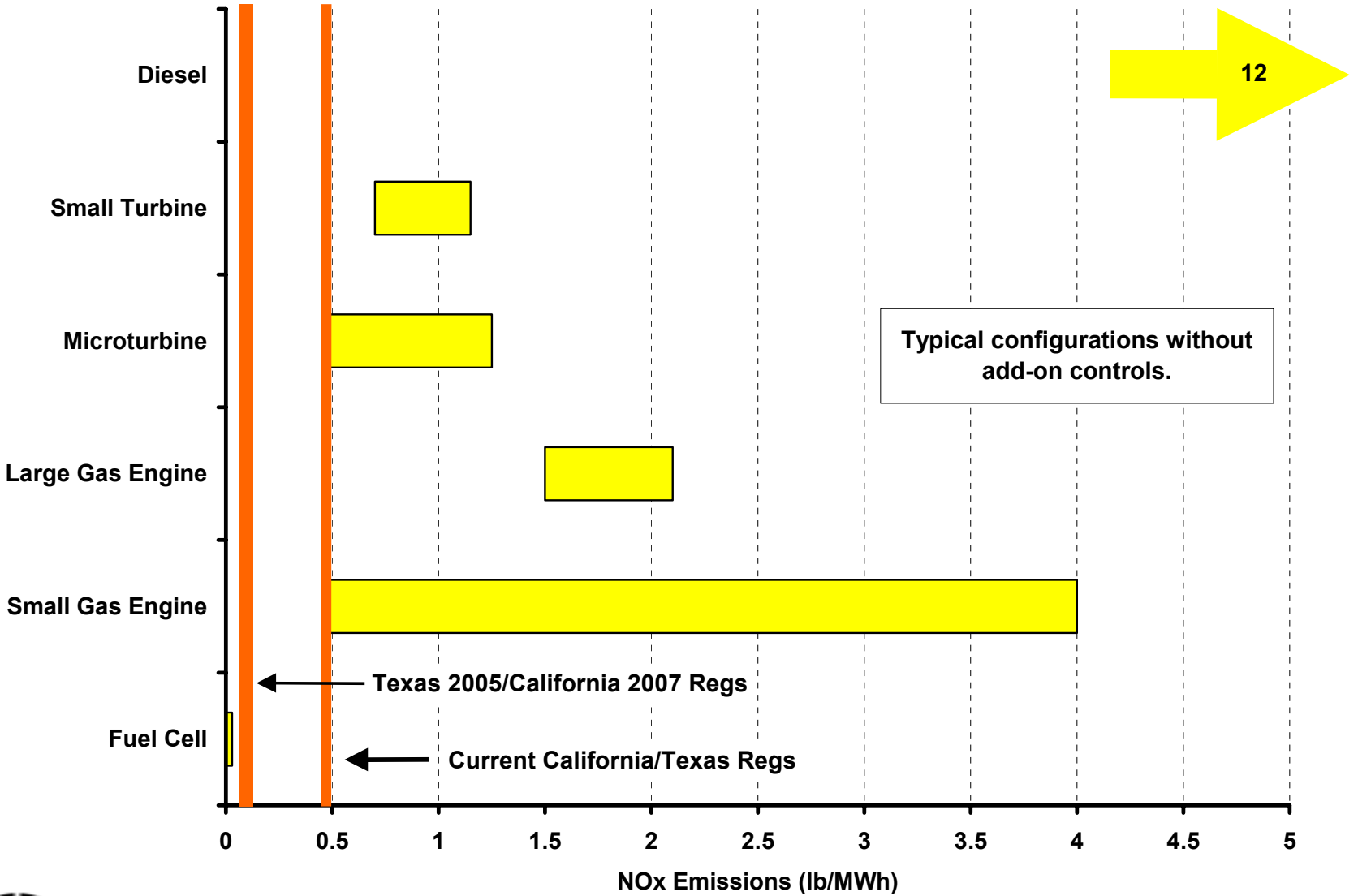
CHP - Beneficial But Difficult to Regulate Appropriately

- Simultaneous generation of heat and power from one heat input.
- Increases efficiency, reduces total emissions.
- Replaces two conventional emission sources.
- Difficult to fit into conventional air permitting framework.

Recent Regulatory Experience

- States beginning to develop new air regulations for DER focused on:
  - Limiting use of diesel peakers.
  - Standard limits for new units - CA, TX.
- Regulatory limits for new units are pushing the limits of current small DER technology.

Much DER Cannot Meet The New Regs



The Impact of Air Quality Regulations on Distributed Generation

- Recent NREL report assesses impact of air quality regulations on DER.
  - Through interviews with developers, regulators and OEMs
  - Analysis of regulatory/technology issues
- What are the problems?
- What solutions can be proposed?

Summary of Problems Found

- Case-by-case permitting not appropriate for small systems.
- No credit for CHP.
- Inadequate credit for pollution prevention and efficiency.
- No credit for avoided or displaced emissions.
- Need for outreach and education.

List of Recommendations

- Develop uniform, achievable air emissions standards for DER.
  - Recognize efficiency and P2.
  - Promote certification
- Provide credit for CHP and avoided/offset emissions.
- Provide outreach and education for regulators and developers.

The Impact of Air Quality Regulations on Distributed Generation

NREL/SR-200-31722

Available at DOE DER homepage.

http://www.eren.doe.gov/der/environmental_regulations.html

National Model Emissions Rule

- A national model rule incorporating most of these features has been developed under DOE funding through a stakeholder process facilitated by the Regulatory Assistance Project.
- Draft rule available at: http://www.rapmaine.org/workgroup.html

Model Rule

- Sets uniform output-based standards.
- Includes credit for CHP and avoided emissions.
- Encourages precertification.
- Three phases of progressively more stringent limits.

Proposed Model Rule Emission Limits[1]

(lb/MWh)

	NO_x Attnmt	NO_x Nonattnmt	CO	PM[2]
Phase I – '04	4	0.6	10	0.7
Phase II – '08	1.5	0.3	2	0.07
Phase III[3] – '12	0.15	0.15	1	0.03

[1]All non-emergency engines

[2] Non-gas technologies only

[3]Subject to technology review. Only low sulfur diesel can be used.

Conclusions

- For better or worse, DG has attracted the attention of air regulators.
- The most negative DER aspects seem to be the most prominent in the market today.
- DER technology is improving but the environmental "promise" of DG is still a promise.
- In the interim, the elements of appropriate "driving" regulation have been proposed.